

REMARKS

The Examiner has rejected claims 1-11 and 13-31 and has objected to claim 12 for being dependent upon a rejected base claim. Claims 9 and 31 have objected to for informalities. Pending in the application are claims 1-31, of which claim 9 and 31 are amended.

Claims 9 and 31 have been amended to overcome objections. Specifically, claim 9 has been changed to properly depend from claim 1. Claim 31 has been amended to remove the word "about." Applicants respectfully request withdrawal of objections. Applicants have also amended claim 21 to properly depend from 20, instead of 120, as originally entered.

The Examiner has rejected claims 1, 6-9, and 14-29 under 35 U.S.C. §103 as obvious in view of Hayashi et al. (U.S. 4,934,142) in view of design choice. The Examiner states: "Hayashi discloses an exhaust aftertreatment system for a reciprocating internal combustion engine...comprising a trap...wherein exhaust gases undergo multiple, random turns in traveling from an upstream side to a downstream side of said trap." Applicants respectfully traverse Examiner's assertion that the system of Hayashi shows a trap in which exhaust gases undergo multiple, random turns in traveling from an upstream side to a downstream side of said trap. From Hayashi: "The first filter 15 is a honeycomb type filter" column 3, line 3 and "then a 1300 cc honeycomb substrate of cordierite and having 300 cells per 1 m² is immersed in the slurry" column, lines 18-23. Both filters in Hayashi's invention are typical honeycomb substrate devices. These are devices with a plethora of parallel channels of hexagonal cross-section with the channels parallel to the direction of flow. Exhaust gases traveling through such a linear duct, as in Hayashi's invention, do not "undergo multiple random turns in traveling from an upstream side to a downstream side." Instead, the flow through a honeycomb device is orderly, essentially laminar flow. As such, it does not provide Applicants' limitation of: "multiple, random turns in traveling from an upstream side to a downstream side of said trap." Because Hayashi does not show all of Applicants' limitations of claim, Hayashi does not anticipate Applicants' claim 1. Applicants respectfully request withdrawal of Examiner's rejection to claim 1.

Applicants' claim 10 contains the limitation: "said channels being irregular in cross-section wherein a trajectory of a centerline of said channels is random;" Claim 14 contains the limitation: "randomly oriented passages through said porous material;" and claim 20 contains the limitation: "having a plurality of irregularly shaped passages." Applicants submit that Hayashi's organized honeycomb structure is exactly the opposite of Applicants' "channels being irregular in cross-section." Applicants request allowance of claims 10, 14, and 20 because Hayashi does not show all of Applicants' limitations.

The Examiner has rejected claim 10 under 35 U.S. C. 103(a) as being unpatentable over Hayashi in view of Tsuru et al. (U.S. Patent 5,310,548). Applicants submit that the combination of Tsuru with Hayashi will not result in "said channels being irregular in cross-section wherein a trajectory of a centerline of said channels is random from an upstream face of said trap to a downstream face of said trap and a total volume of said channels comprises more than 90% of the total volume of said trap" as stated in claim 10. The filters shown in Figures 3 and 4 of Tsuru are alternatives to the filter shown by Hayashi, i.e., they cannot be combined. Applicants respectfully request withdrawal of the rejection to claim 10.

The Examiner has rejected claim 25 as being anticipated by Hayashi et al. However, the Examiner has made no assertion that Hayashi et al. shows Applicants' limitation of: "provid[ing] an indication of an amount of said trapped phosphorous and rais[ing] temperature in said phosphorous trap above a predetermined temperature when said amount of phosphorous containing material exceeds a predetermined quantity." Applicants submit that no reference shows Applicants': "provid[ing] an indication of an amount of said trapped phosphorous and rais[ing] temperature in said phosphorous trap above a predetermined temperature when said amount of phosphorous containing material exceeds a predetermined quantity" and therefore respectfully request allowance of claim 25 and claims 26-31 which depend therefrom.

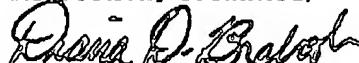
Applicants have entered new claims 32-38. Applicants submit that independent claim 32 containing the limitation: "said trap comprising a porous metallic or ceramic foam material having a plurality of irregularly shaped passages.

walls of such passageways being provided by the foam material, such walls being substantially thinner than such passageways" distinguishes over the prior art. Specifically, Applicants' "irregular passageways" does not read on honeycomb substrates in which the passages are orderly and regular in cross-section. Further, Applicants' "such walls being substantially thinner than such passageways" does not read on devices such as Tsuru's Figure 3 showing pellets. The area taken up by the pellets shown in Tsuru's Figure 3 are much greater than the area through which the exhaust gases may be conducted, which teaches away from Applicants' "such walls being substantially thinner than such passageways." Applicants' claim 35, containing the limitation: "said trap comprising a porous metallic or ceramic material having a plurality of irregularly shaped passages" also distinguishes over the prior art. Applicants request allowance of claims 23 and 35 and further requests allowance of claims 33-34 and 36-38 which depend therefrom.

No other art is cited in the Office Action. Based on the foregoing comments, the above identified application is believed to be in condition for allowance, and such allowance is courteously solicited. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the number listed below.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account 06-1510. If there are insufficient funds in this account, please charge the fees to Deposit Account No.06-1505.

Respectfully submitted,



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